

PATENT CLAIMS

- 5 1. Method for assessing the stability of an electric power transmission network, where said network comprises a plurality of substations, buses and lines, and a system protection center (8), characterised in that the method comprises the steps of
- 10 a) measuring phasor (9) data for voltages and currents at a plurality of locations of the network,
b) transmitting said phasor data (9) to said system protection center (8),
c) transmitting information (5) regarding the state of switches of at least one substation to the system protection center (8), and
d) the system protection center (8) determining at least one stability margin value of the transmission network from said phasor data (9) and said information regarding the state of switches.
- 15 2. The method claimed in claim 1, further comprising the steps of
- 20 a) the system protection center (8) determining one or more control commands (6),
b) the system protection center (8) transmitting said control commands (6) to the at least one substation, and
c) the substation executing said control command (8).
- 25 3. The method claimed in claim 1, further comprising the steps of
- 30 a) the system protection center (8) determining network state information (11),
b) the system protection center (8) transmitting said network state information (11) to an energy management system (7), and
c) the energy management system (7) controlling power generation and power flow within the network according to the network state information (11).

4. The method claimed in claim 1, characterised in that the phasor data (9) is measured at least every 100 milliseconds.

5. The method claimed in claim 1, characterised in that the phasor data (9) is associated with a time stamp that has a temporal resolution smaller than one millisecond.

6. The method claimed in claim 1, characterised in that the measurement of phasor data (9) is synchronised by timing information from the global positioning system.

7. A system protection center (8) for an electric power transmission network comprises a data concentrator unit for storing phasor data (9) from a plurality of phasor measurement units (10) that are distributed over the power transmission network and for storing substation data (5) from a plurality of substation automation systems (2) and a system protection unit for generating at least one stability margin value of the transmission network.

8. The system protection center (8) as claimed in claim 7, characterised in that it comprises an automated control unit for generating control commands (6) for a substation automation system (2) from the at least one stability margin value and from data provided by the data concentrator unit.

9. The system protection center (8) as claimed in claim 7, characterised in that it comprises means for transmitting network state information (11) to an energy management system (7) of the transmission network.